CLAIMS

What is claimed is:

1. A method for sampling packets in a network, comprising:

determining a first number of packets to be sampled from a second number of packets;

pseudo-randomly shuffling a packet index order corresponding to said second number of packets;

sampling a packet based on a pseudo-randomly shuffled packet index.

2. The method of Claim 1, wherein said pseudo-randomly shuffling is performed by a linear feedback shift register.

3. The method of Claim 2, wherein said second number of packets is a power of two.

4. The method of Claim 2, wherein said second number of packets is any positive integer number.

5. The method of Claim 4 further comprising:

partitioning said second number of packets into a plurality of groups equal to a largest power of two which is smaller than or equal to said second number of packets;

selecting a number from said plurality of groups for determining sampling.

6. The method of Claim 5 further comprising using a linear feedback shift register to determine which of said plurality of groups contains at least two numbers.

7. The method of Claim 2 further comprising using a counter or a pseudo-random number generator.

8. The method of Claim 1, wherein a pseudo-random shuffle function with a one-to-one mapping and no overlap is used to perform said pseudo-randomly shuffling.

9. The method of Claim 8, wherein said pseudo-random shuffle function is implemented in either hardware or software.

10. An apparatus for sampling packets comprising:

logic for selecting n-out-of-N packet for sampling, wherein a packet index is pseudo-randomly shuffled.

11. The apparatus of Claim 10, wherein said logic performs a shuffle function with a one-to-one mapping and no overlap.

12. The apparatus of Claim 10, wherein logic comprises a linear feedback shift register.

13. The apparatus of Claim 10, wherein said linear feedback shift register performs a shuffle function when N is a power of two.

14. The apparatus of Claim 10, wherein said linear feedback shift register performs a shuffle function when N is any positive integer value.

15. The apparatus of Claim 10 further comprising:

a circuit coupled to said logic for partitioning N into Y groups equal to a largest power of two which is smaller than or equal to N;

a selector for selecting n or (N - n) groups.

16. A computer-readable medium having stored thereon instructions for sampling packets in a network, comprising:

determining a first number of packets to be sampled from a second number of packets;

pseudo-randomly shuffling a packet index order corresponding to said second number of packets;

sampling a packet based on a pseudo-randomly shuffled packet index.

17. The computer-readable medium of Claim 16, wherein said pseudo-randomly shuffling is performed by a linear feedback shift register.

18. The computer-readable medium of Claim 16, wherein said second number of packets is a power of two.

19. The computer-readable medium of Claim 16, wherein said second number of packets is any positive integer number.

20. The computer-readable medium of Claim 16, wherein said instructions further comprise:

partitioning said second number of packets into a plurality of groups equal to a largest power of two which is smaller than or equal to said second number of packets;

selecting one number from said plurality of groups for determining sampling.

21. The computer-readable medium of Claim 20, wherein a linear feedback shift register is used to determine which of said plurality of groups contains at least two numbers.

22. The computer-readable medium of Claim 16, wherein a pseudo-random number generator with a one-to-one mapping and no overlap is used to perform said pseudo-randomly shuffling.